Factors Contributing To Therapeutic Compliance Of Epileptic Patients And The Suggestive Solutions

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Abstract

Epileptic seizures are only one manifestation of neurologic or metabolic diseases. Epileptic seizures have many causes, including a genetic predisposition for certain seizures, head trauma, stroke, brain tumors, alcohol or drug withdrawal, and other conditions. . Several factors affect patient's level of adherence. These factors include type of therapy, patient's own condition, health team, social and financial support patient's psychological condition . **The aim;** of this work is to detect the factors affecting compliance to therapeutic regimen among adult patients with epilepsy and the suggestive solutions for the main factors of noncompliance. **Methodology;** two tools were used in the study; epilepsy self-adherence scale and interviewing questionnaire to identify factors affecting compliance. **Setting;** Epilepsy outpatient clinic**,** Ain Shams University hospital **Sample:** A convenience sample of (50) adult female and male patients with epilepsy were included **Results:** (32%) of the patients with epilepsy had unsatisfactory level of compliance to therapeutic regimen & followed instructions .Furthermore, the most common factors affecting patients` compliance negatively were therapy related factors, health care team, and financial burden (41.5%,39%&38.5%) respectively . **Conclusion;** more than two thirds of the patients with epilepsy had unsatisfactory compliance level. Furthermore, many factors were affecting patients` compliance such as therapy related factors, health care team ,financial factors, condition related factors, and social support. .**Recommendation;**. Health care providers should be oriented with the importance of patient's compliance and suitable strategies to plan and implement individualized care for each patient to improve adherence. Patients and their families should be provided with adequate knowledge about epilepsy and the importance of proper adherence to necessary self-management practices including adequate safety precautions, diet and exercise regimens , follow up schedules, stress management and avoidance of precipitating factors that may contribute to province a seizure activity.

Keywords: patient compliance, therapeutic regimen, adherence, factor.

Introduction

Epilepsy is a medical condition with recurrent, unprovoked seizures. Therefore, repeated seizures due to alcohol withdrawal or repeated episodes of metabolic insults, such as hypoglycemia, are not epilepsy (cavazos,J.E.,&Benbades,S.R., 2013).

Epileptic seizures result from abnormal, excessive or hyper synchronous neuronal activity in the brain(American Academy of Neurology,2012).About 50 million people worldwide have epilepsy, and nearly 80% of epilepsy occurs in developing countries("Epilepsy". World Health Organization. January 2009).   Epilepsy becomes more common as people age(*Wyllie's treatment of epilepsy : principles and practice2010).*and(Engel J Jr 1996).   Onset of new cases occurs most frequently in infants and the elderly. As a consequence of brain surgery, epileptic seizures may occur in recovering patients(Duncan, JS; Sander, JW, Sisodiya, SM, Walker& MC2006).

Egypt is one of the countries which obviously suffers from epilepsy which is considered to be a major challenging health problem among Egyptian population. Recent studies   showed that total number of people suffering epilepsy as a diagnosed cases were 4.1 /1000 in 2007 **(World Health Organization [WHO], 2009).**

  In Egypt , the prevalence of diagnosed epilepsy among Egyptian   population ($\geq$ 20 years) is : 2.1% of rural residents, 6.1% of urban residents **(International League Against Epilepsy, 2008).** In addition the estimated

number of patients with epilepsy who are visiting outpatient clinic   of Ain Sham University hospital during the year of   2008-2009 about 5121 patients with high percentage   among patients elder than 20 yrs.(70%),with equal percentage of male and female cases **(Information and Statistics Center & Ain Shams University Hospital, 2009).** Moreover this disorder is associated usually with a social stigma in many societies especially Arabic one which interprets seizures usually as devil spirits or madness conditions, this is turn has its bad psychological sequences on those patients with epilepsy **(Shorvn,2008).** Epilepsy has a significant impact on a person's physical, psychological, and social welfare. In the physical dimension, seizures often cause bodily harm, for example, trauma, burns, fractures, bleeding, and drowning**(Nei M, Bagla L. ,2007).** Currently ,most studies on medication compliance explore one factor, such as the physical symptoms of drug treatment**(Chung S, Wang N, Hank N.2007).** According to **Mattso, (2007)** epilepsy as a chronic disorder needs lifelong management   and significantly leads to an increased incidence of morbidities, disabilities and mortalities among patients. For individuals with epilepsy, adherence to medication is crucial in preventing or minimizing seizures and their cumulative impact on everyday life. Non-adherence to antiepileptic drugs (AEDs) can result in breakthrough seizures many months or years after a previous episode and can have serious repercussions on an individual's perceived quality of life**(Baker et al 1997)**.Reasons for non-adherence are complex and multilayered **(Donovan and Blake 1992; Mitchell et al 2000)**. Patients can accidentally fail to adhere through forgetfulness, misunderstanding, or uncertainly about clinician's recommendations, or intentionally due to their own expectations of treatment, side-effects, and lifestyle choice. There are various strategies suggested for managing patient adherence but these are highly dependent on the reasons why a patient has not followed clinician advice initially **(Conrad 1985)**.

Subjects& Methods
This study aimed to:
1- Assess the level of patient's compliance to therapeutic regimen   .
 2- detect factors affecting adult epileptic patients' compliance to therapeutic regimen.
3- Suggestive solutions to the most common factors affecting the patients' compliance.

Research Question
                 What are the factors affecting   compliance among adult patients with epilepsy to therapeutic regimen ?
Research design
The selective design is a descriptive   exploratory .
setting :This study conducted at Epilepsy outpatient clinic at Ain   Shams University Hospital.
Subjects: All available adult patients with epilepsy (50) were included in the study within   three months from June to August   (2012) with the following **inclusion criteria**:
- o   Patient age is between 20- 45 yrs. old.
- o   Diagnosed with epilepsy for more than 1 year duration .
- o   Both gender included.

A.   Tools of data collection
   In this study, two tools of data collection had been used :
- • Epilepsy Self Adherence Scale to assess patient compliance
- • Interviewing questionnaire sheet to assess factors affecting patient compliance .
1. Epilepsy Self Adherence Scale
        The scale is quoted from Delirious Epilepsy Self-Management Scale (2007) .This scale translated into Arabic and it consists of three parts:
Part I : it concerned with socio demographic data of the patient including(age, sex, residence, marital status ,social status, occupation, educational level, income) ,this part developed by the researcher.
Part II : it concerned with patient health history related to epilepsy.
Part III : it concerned with the items to assess patient compliance in relation to the therapeutic regimen including; therapeutic regimen, safety measures, exercise ,diet regimen ,follow up, sleep& rest, stress management. Each item is rated as:
- • Never   1 point
- • Sometimes   3 point
- • Always   5 point

Scoring system:

Total score for every patient will be considered as :

- < 60% was considered unsatisfactory compliance behaviors and > 60% was considered satisfactory compliance behavior

as regards Medication, Safety measures,   Exercise, Diet, Follow up, sleep& rest and stress management.

2.Interviewing Questionnaire Sheet

The sheet was used to assess factors affecting patient compliance to therapeutic regimen : consists of three items :

1. Medical factor

This part is quoted from a study conducted by **WHO** (2007) which modified by the researcher; this part is divided into three groups of factors

- Therapy related factors**.**
- Health care team/ health system related factors.
- Condition related factors **.**

The Scoring system :   Each item   in each group scored as Yes (1), No (2)

2. Psychosocial factors

This part is quoted from Collen & Dolirio,(2007)   which consists of 3 groups of factors :

- Social support related factors : consists of 8 items each item is rated as Never (1) ,sometimes(3) , always (5).
- Financial support related factors: each item scored as yes (1) , No (2)**.**

3- The objective of Good adherence education through the suggestive strategies for solutions   may be based on:

- stressing the importance of adherence at the time the therapy is initiated;
- emphasizing the consequences of nonadherence;
- spending adequate time with the patient;
- enquiring about adherence at each visit;
- motivating patients to incorporate drug adherence into their lifestyles;
- designing and implementing intervention strategies to improve adherence to self-medication.

Operational Design

A pilot study: was conducted on 5 patients for testing feasibility and applicability of the tools then the necessary modifications were done. Those patients were excluded from the study sample.

A-   Content validity :The revision of the tools done by a panel of 10 expertise to measure the validity of the tools and the necessary modifications were done accordingly.

B- Field work:

The aim of the study and the component of the tools were explained to patients at the beginning of data collection. They were assured that the information collected would be treated confidentially and that it would be used only for the purpose of study.

Administrative Design

To carry out the study , the necessary approval were obtained from the Out Patient Clinic Medical Director of AinShamsUniversityHospital. Official letters were issued to them from the faculty of nursing explaining the aim of the study to obtain permission for the collection of data. Oral consent was taken from patients for permission to participate in the research process.

Ethical consideration

 Ethical research in this study includes the following:

 The research approval obtained from the ethical committee   before starting the study.

Statistical Design

The collected data were organized , categorized , tabulated and analyzed . using actual numbers and percentage in tables. The statistical significance and association were assessed using chi square test (X2) .

<div align="center">RESULTS</div>

Table (1) shows that the mean age for the patients included in the study were (23.04$\pm$8.27.5); also about half of the

sample (26%) were males. In relation to the educational level of patients ,it was found that (20%) of them were illiterate**.** Concerning the marital status, slightly more than half of them (26%) were married, (41%) of the patients were living with their families. And most of them have not enough monthly income for treatment.

   Table (2) illustrates that almost two thirds of the patients (29%) were suffering from epilepsy for a period ranges from (5<10 years) while only about half of them (26%) were receiving their medication for the same duration(5<10 years) with high statistically significant difference (p<0.001). As regards to the frequency of seizures , it was found that more than two thirds of the patients (33%) had more than one seizure per week with a high   statistically significant difference (p<0.001).

On the other hand all the patients experience side effects of AEDs with statistically significant difference(p<0.001).

       Table(3) is showing that most of the studied patients (45 %) sometimes or always taking their medications in time , about half of the patients (26%) were taking sometimes or always   their medications regularly & nearly all of the studied patients (48%) were taking their medications in the prescribed doses .And about four fifth (40%) of the patients were keeping their antiepileptic medications wherever they go .   Also (43.5%) of the patients sometimes stop taking their medications because of its financial burden. And (26%) of them always spread out doses of their medication when attacks decreased.

         Table(4): showed that (22%) of the patients have satisfactory level of compliance toward therapeutic regimen while less than two thirds (28%) have unsatisfactory compliance levels with a statistically significant difference (p<0.05).

         Table(5): showed that majority of the patients were had unsatisfactory compliance level to safety measures, exercise, diet regimen, sleep & rest, follow up schedule and stress management (45%,43%,38%,30%,28%,42%) respectively with   statistically significant difference (p<0.05) **.**

   Table(6) Regarding health care team related factors affecting patients` compliance; this table showed that all the patients included in the study (100%) did not receive any health education about epilepsy from nurses while only(6%) of the patients received health education from physicians And about three quarters of the patients studied (37%) found difficulty of doctor's vocabulary which in turn affects negatively on patient's adherence .

   Table (7)Regarding condition related factors affecting patients` compliance; this table showed that the majority of the patients under the study (45%) stated that long term therapy affect negatively on their adherence to follow medication regimens; and all of the patients (100%) experience forgetfulness and memory deficits as adverse effect of medication and affect negatively on their compliance with a high significant differences   (p<0.001). In addition to half of the study group have frequent seizures that affects their adherence to medicines.

   Table(8) Regarding social support related factors affecting patients compliance; this table   illustrates   that most of the patients (38%) sometimes receive encouragement from their families to visit   their doctors, half of them (25%) sometimes receive effective participation in his health problem and (22%) of the patient's families were sometimes helping them adhere to medication regimen. Also(30%)

Of patients always have family help them manage their seizures before.

     Table (9)Regarding the financial factors affecting the patients compliance; This table showed that more than two thirds of the patients (34%) did not have health insurance, (36%) of the patients had financial burdens in buying their medications . Also , most of the patients (44%)were buying   medicines on their personal budget ,and   all of the patients (100%)were suffering from costs of medical care as regard to transportation fees, missing work hours .etc. with a high significant differences   (P<0.001).

Part I: A. Socio-demographic Characteristics of Patients with Epilepsy.

Table (1): Socio-demographic characteristics of the patients under the study (No=50)

Items	No	%
(NO=50)		
Age(years):		
20 < 30	22	22.00
30 .< 40	23	23
40-50	5	5
Range	10.5-22.5	
Mean ±SD	23.04+8.27	
Gender:		
Male	26	26
Female	24	24
Marital status:		
Single	15	15
Married	26	26.00
Widowed	1	1.00
Divorced	8	8.00
Level of education :		
Illiterate	20	20.00
Read And Write	9	9.00
Secondary	12	12
University	9	9
Education		
Living status		
Alone	9	9.00
With family	41	41.00
Monthly income		
Enough for treatment fees	14	14
Not enough for treatment	36	36

Table (2): Distribution of   patients in the study as regard to the health history of epilepsy (N=50)

Items	Health history			Chi-square	
		N	%	X^2	P-value
Duration of disease	**1<5 yrs.**	12	12%	26.385	<0.001 (**Hs**)**
	5<10 yrs.	29	29%		
	≥10 yrs.	9	9%		
Duration of	**1<5 yrs.**	17	17%	10.5.80	<0.001

213

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medication taking	5<10yrs	26	26%		(Hs)**
	≥ 10yrs	7	7%		
No . of seizures attacks per month	≤ 1 / week	33	33%	5.120	<0.001 (Hs)**
	>1 /week	17	17%		
Type of AEDs side effect	Forgetfulness	29	29 %	27.460	<0.001 (Hs)**
	Lack of concentration	11	11%		
	Lethargy	3	3 %		
	Headache	7	7 %		
No of AEDs	Monotherapy	19	19%	37.490	<0.001 (Hs)**
	Poly therapy	31	31%		
Family history of epilepsy	Negative	46	46%	36.480	<0.110 (NS)
	Positive	4	4 %		

(NS) Not Significance

(Hs)** High Significant

Part II: This part is concerned with presentation of the compliance level of the patients to therapeutic regimen and followed instruction according to Epilepsy Self Adherence Scale (ESAS) .

Table (3) Distribution of patients with epilepsy regarding their compliance level to medication regimen (N=50)

I. Compliance to Medication				Chi-square	
	Never	Sometimes	Always	X^2	P-value
Q1. Did you ever take your medicines in time ?	5%	35%	10%	82.35	<0.001 (HS)**
Q2- Did you ever take your medications regularly as ordered?	24%	12%	14%	74.35	<0.001 (HS)**
Q3. Did you ever take your medications in prescribed doses?	2%	5%	43%	68.20	<0.001 (HS)**
Q4. Did you spread out doses of your medications when seizure attacks decreases?	18%	6%	26%	76.12	<0.001 (HS)**
Q5. Do you skip out doses of your medications when you start suffering side effects?	9%	17%	24%	86.30	<0.001 (HS)**
Q6. Did you ever use reminder to remember up you medication time?	38%	6%	6%	26.41	<0.001 (HS)**
Q7. Did you change the type of medication without your doctor instructions?	29%	10%	11%	58.25	<0.001 (HS)**
Q8. Did you stop medications because of suffering from complexity of your	28%	9%	13%	72.28	<0.001 (HS)**

medicines doses?					
Q9.Do you ask your doctor before taking another medication?	9%	19%	22%	106.40	<0.001 (HS)**
Q10. Did you ever inform your doctor about the side effects of seizure medications?	7%	28%	15%	61.39	<0.001 (HS)**
Q11. Did you ever stop having your seizure medication refilled because of financial cost?	6%	13%	31%	56.25	<0.001 (HS)**
Q12. Did ever miss doses of your medication because you forget it?	11%	33%	6%	72.12	0.037 (S)*
Q13. Do you call your doctor when you have seizure frequent more than usual ?	32%	7%	11%	57.43	<0.001 (HS)**
Q14. Do you keep your seizure medication wherever you go?	5%	38%	7%	78.11	<0.001 (HS)**

(S)* Significant
(HS)** High Significance

Table (4) Patients `distribution regarding total compliance score to their therapeutic regimen (medication regimen).

(Patients No = 100)				
Total compliance score	NO	%	**Chi-Square**	
			X^2	**P-value**
Satisfactory Score	22	22 %	10.180	<0.05 (s)*
Unsatisfactory Score	28	28%		
Total	50	50		

(S)*Significant

Table (5) Overall Distribution of the patients as regards to level of compliance to followed instructions   (N=50)

Table (6) Distribution of patient with epilepsy regarding health care team / health system related factors (N=50)

(Patients No=50)						
Items	**Satisfactory Compliance**		**Unsatisfactory Compliance**		X^2	**p-value**
	No	**%**	**No**	**%**		
Safety Measures	5	5%	45	45%	-1.19	0.001(HS)*
Exercise	7	7%	43	43%	-1.04	0.01(S)*
Diet Regimen	12	12%	38	38%	-1.7	0.05(S)*
Sleep& Rest	20	20%	30	30%	-1.28	0.03(S)*
Follow Up	22	22%	28	28%	-1.49	0.07(HS)*
Stress Management	8	8%	42	42%	-1.18	0.06(S)*
Total compliance	18	18%	32	32%	0.046	0.001(HS)**

PATIENTS NO = 100				
Health care team/ health system related factors	**Yes**	**No**	**Chi-square**	
			X^2	**P-value**

Q1.Did you ever receive any form of health education about epilepsy?
    If yes:
        - Physician
        - Nurse
        - Others
	6%
	0%
	0%
		44%
		100%
		100%
			17.44	**< 0.05 (S)**

Q2. Did your doctor use easy understandable words to explain health instruction to you?	13%	37%	67.5	<0.001(HS)**
Q3. Did your doctor answer all your questions about your case?	6%	44%	94.38	<0.001(HS)**
Q4. Did nursing team clarify doctor instruction before?	0%	100%	-	-
Q5. Did nursing team use teaching methods or booklets to provide you with information?	0%	100%	-	-
Q6. Are you satisfied with the delivered health services?	5%	45%	0.049	<0.001(HS)**

*(S) Significant

** (HS) High significance

Table (7)   Distribution   of patient with epilepsy regarding condition related factors(N=50)

PATIENTS NO = 50				
Condition related factors	**Yes**	**No**	**Chi-square**	
			X^2	**P-value**
Q1.Is long term therapy affects your willingness to follow medication regimen?	45%	5%	0.033	<0.000(HS)**
Q2. Did you experience previous medication failure before?	23%	27%	0.83	<0.001(HS)**
Q3. Do you have frequent seizures that affects your adherence to medicines?	25%	25%	0.049.5	<0.001(HS)**
Q4.Do you experience side effects of AEDs such forgetfulness or memory deficit that may affect your medication schedule?	100%	0%	-	-

Table (8) Distribution of patients with epilepsy in the study regarding social support related factors.

PATIENTS NO = 100					
Social support related factors	**Never**	**Sometimes**	**Always**	**Chi-square**	
				X^2	**P-value**
Q1. Did your partner/family encourage you to visit your doctor?	5%	38%	7%	0.022.5	0.017(S)*
Q2. Did your partner/family participate in your health problems?	9%	25%	16%	0.414	0.027(S)*
Q3. Did your partner/family have a role to help you adhere to your medication regimen?	11%	22%	17%	0.034	0.024(S)*
Q4. Did your partner/ family ever remind you with the importance of	11%	28%	11%	0.490	0.001(HS)**

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taking medications regularly?					
Q5. Did your partner/ family help you manage your seizures before?	12%	8%	30%	0.027	0.000(HS)**
Q6. Did your partner/ family ever accompany you to the physician?	11%	20 %	19%	0.92	0.001(HS)**
Q7. Did your partner/family help you doing your blood tests?	10%	27%	13%	0.085	0.032(S)*
Q8. Did your partner/ family express bad behaviors against you because of your illness?	43%	6%	1%	0.62	0.028(S)*

** (HS) High significance
 * (S) Significant.
Table (9) Distribution of patients with epilepsy under the Study regarding financial support related factors

Financial support	Yes	No	Chi-square	
			X^2	P-value
Q1. Do you have health insurance?	16%	34%	0.180	0.297 (NS)
Q2. Do you have enough money to buy your medication?	14%	36%	0.394	0.09(S)*
Q3. Do you buy some medicines on your personal budget?	44%	6%	0.366	0.001(HS)**
Q4. Do you suffer of financial costs medical care(transportation ,missing work hours, .etc.?	100%	0%	0.211	0.001(HS)**

Table (10) Factors affecting adherence to treatment for epilepsy and the suggestive solutions to improve adherence

Epilepsy	Factors affecting adherence	Suggestive solutions to improve Adherence
Socioeconomic-related factors	(-) Long distance from treatment setting under 60 years old teenagers poverty, illiteracy ,unwillingness to pay the cost of medicines, high cost of medication local beliefs or beliefs about the origin of illness . (+) Elderly patients (over 60 years old) children from family reporting less parental education.	Assessment of social and career needs.
Health care team/health system-related factors	(-)Inadequate or non-existent reimbursement by health insurance plans irregular or poor drug supply lack of free medicine supplies poorly developed health services lack of education about AEDs . (+) Good relationship between patient and physician	A regular, uninterrupted supply of medicines in developing countries good patient – physician relationship instruction by nurses and physicians about methods of incorporating drug administration into patient's daily life; training health. professionals on adherence; adherence education .
Condition-related factors	(-)Forgetfulness memory deficits duration, and previous treatment failures high frequency of seizures.	Education on use of medicines Suggesting memory aids .
Therapy-related factors	(-)Complex treatment regimens misunderstanding instructions about how to take the drugs adverse effects of treatment . (+) Mono therapy with simple dosing schedules .	Simplification of regimens; single antiepileptic therapy (mono therapy) education on use of medicines; patient-tailored prescriptions; clear instructions; use of educational materials monitoring and reassessment of treatment

AEDs, Anti-epileptic drugs; (+) factors having a positive effect on adherence; (-) factors having a negative effect on Adherence(WHO,2012).

Discussion

epilepsy is defined as a brain disorder characterized by an enduring predisposition to generate epileptic seizures and by the neurobiological, cognitive, psychological, and social consequences of this condition(Cavazos ,J .E., & Benbades, S. R.,2013) . Epilepsy is usually controlled, but not cured, with medication . However, over 30% of people with   epilepsy do not have seizure control even with the best available medications. Surgery may be considered in difficult cases (Fisher,R.,2005). The current study revealed that less than half of the patients with epilepsy were between 20-30 yrs. which is correspondent with **Lennox, (2007)** who reported that approximately half of the patients   were in the age group between 20 years and 30 years , in their active productive stage of life. Also, this   finding goes in line with the study of **Jenkins, (2008)** who found that incidence of epilepsy was the   highest among youth patients after age of 18 yrs.young patients under 40 years also have a low compliance rate as listed in (Loong 1999; Siegal and Greenstein 1999). As regards to gender , the current study found that nearly half of the patients were female and the other half were males ,   this result is supported with the incidence estimated by **CDC ,(2007)** which reported that males and females are equal regard The concurrent study showed that more than half of the patients were married as marriage is often occur after age of 18 yrs. the same result is found   by   **Farred , (2007)** who reported that more than half of patients with epilepsy   which he studied were already married or have partner in life. Regarding the educational level , this study revealed a relatively high percentage of patients equal two fifth   were illiterates . This result was in accordance with **Moneer , (2008)** who reported that almost half of the patients in his study were illiterates and read & write. This finding demonstrates that epilepsy can occur equally in less educated and highly educated individuals as educational level have no role in incidence of epilepsy among people. On the other hand, the result revealed by **Pedly ,(2008),** showed that   males have a slightly higher risk of epilepsy than females. In relation to patients monthly income , the present study revealed that, the monthly income was not enough for treatment fees .This finding was in agreement with **Ali (2005),** who reported that, majority of the studied patients were suffering low socioeconomic status   in which patient's monthly income was 200 pounds for person/month. This result probably due to decreased work ability ,missed work hours and days which negatively affects the patients willingness   to follow prescribed health instructions. Regarding to duration of disease, this study found that almost two thirds of the patients were suffering from epilepsy for 5 to 10 yrs. duration   this   finding is in agreement with **Lessitma (2009)**, who reported that   duration of epilepsy among   two   thirds of the patients in his study was from 5 to 10 yrs. Regarding to the family   history ,   this study   revealed that about 7% of the patients have a positive family history for   epilepsy .This result is typically correspondent with **Schimdt   (2009),** who reported the same percentage of family history of epilepsy among the patients. Regarding to the type of therapy ,about three quarters of patients in this study were   receiving poly   therapy (more than 1 AEDs) , this result in accordance with **Kanner (2009),** who reported that about   three quarters of the   patients with epilepsy were   Achieving   control on their seizure only with the use   of multiple medication regimen with the   increased risk of drug toxicity and increased costs of medications. Regarding to level of patients   compliance it was found that the compliance level among more than   two thirds of the   patients was unsatisfactory. This result is correspondent with **Garrnett, (2005)& Maglenn(2007),** and **Simon (2008)** who reported that patients adherence to medication regimen was unsatisfactory   among about thirds of the patients on AEDs . On the other hand **WHO(2007),** reported higher satisfactory percentages among the   patients with epilepsy from 30-45% compliance level. The current study showed that patients compliance toward   followed instructions regarding   the safety measures was unsatisfactory in almost all the patients under the study which is   correspondent with the results of Robin(2004),who reported a poor compliance in following safety precautions during driving, sporting, activity of daily living (ADL)   . This results also is supported   by Austin & Dunn(2005),who stated that patients did not receive enough instructions   & health education   regarding safety precautions   and this is supposed to be the cause of poor compliance . Regarding exercise regimen, current study recorded that almost   four fifth of the patients had unsatisfactory compliance ,this result is in accordance with   Lennox , (2007), who reported unsatisfactory compliance to exercise regimen for about four fifth of the   patients ,this result is caused by lack of health education about   importance of regular exercise and   sporting .The current study found that almost three quarters of the patients under the study recorded unsatisfactory level of compliance toward diet regimen such as following regular meals, balanced diet, fasting and following a   ketogenic diet .This result is correspondent to the researches done   by American Epilepsy Society(2003), which emphasized that patients with epilepsy do not follow special diet regimen as   a

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complementary treatment to medication . The current study clarified that poor financial conditions and lack of knowledge were the main barriers to proper compliance in relation to dietary measures for patients with epilepsy. In relation to compliance to sleep &rest instructions, the present study revealed   that almost two   thirds of the patients were noncompliant to follow sleep schedule, get enough sleep hours daily and   about three quarters of them never take enough rest periods during work hours . Recent researches done by Kwan   (2007),& Brodie (2007), who found that patients with epilepsy do not take enough sleep   hours , do   not take enough rest periods during work hours as they perceive these instructions as life   limitations which in turn drive them to refuse to follow it . The current study estimated the total compliance level of patients toward   therapeutic regimen & followed instructions and it was found that more than two thirds of the patients have unsatisfactory compliance level while only one third were properly compliant and the current study clarified that patient's compliance to therapeutic regimens was higher than compliance to followed instructions.   This result is correspondent with **Buclear(2008),** who reported that two thirds of the patients   were compliant to   medication regimen and self-management strategies .This finding supported   by the result revealed by **Roos(2004),& Maccoby (2006),** who reported that majority of the patients who were taking   AEDs   for longer than 5 yrs. were poorly complaints to their medications because of long term therapy, experiencing side   effects of medication for long periods and because of financial   burden on the patient's life. As regards to the relation between adverse effects of AEDs and compliance level, this study clarified that there is a negative impact of experiencing adverse effects of medication on the patient's adherence which inconsistent with Nelson(2006),who found that majority of the patients on AEDs especially poly-therapy are experiencing lack of concentration and partial memory loss which negatively affect patient's compliance .The present study reported that there was a significant negative correlation between poor doctor–patient communication and patient compliance. A supporting study done by   Shinnar(2006),   In addition to Favre (2002), found that educating the patients about their disease state and general comprehension of medications would increase their active participation in treatment. Furthermore the study revealed that lack of social support contribute to the noncompliance of about 70% of the patients with epilepsy .This finding guarantee with the results of Frank (2006), who reported that the patients who received support from their families complied with the health   regimens better than those did not receive support from their families . In relation to financial factors, this study confirmed that there is a strong positive correlation between patient's financial condition and   level of compliance. This result goes in line with Caspard (2005), who stated that   cost is a crucial issue in patient's compliance especially for patients with chronic disease such as epilepsy   because   the treatment period could be life-long . At the end the study showed that there are many important factors affecting patients compliance.

Conclusion

The study concluded that the mean age for the patients included in the study were (23.04+8.27.5); also about half of   the   sample   (26%) were males . it was found that more than two thirds of the patients (33%) had more than one seizure per week with a high   statistically significant difference (p<0.001) .   M0re than half of the study group have unsatisfactory compliance levels with a statistically significant difference (p<0.05). More than two thirds of the patients (34%) did not have health insurance .Also more than two thirds of the patients with epilepsy had unsatisfactory compliance level to therapeutic regimen and followed instructions including safety measures, diet regimen , exercise regimen , follow up schedules and stress management. Also many factors are affecting patients compliance such as therapy related factors, health care team, financial factors, condition related factors, and social support.

Recommendation

1. Implement the suggestive solutions and effective strategies on the epileptic patients to improve their compliance toward therapy.
2. Further researches should be held on wider range and other societies.
3. Training program for health team to avoid health team related factors of patients noncompliance.

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